Project Memorandum

TO: Steve Burr   DATE: 7 September 2005

FROM: Kevin Eldridge

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SUBJECT: HAPRACT Standard Industrial Classification Modeling Results

The objective of the air quality dispersion modeling analysis was to determine if an industrial category, as defined by its primary 4-digit Standard Industrial Classification (SIC) code, will be subject to the HAPRACT provisions of Arizona's air quality regulations.   The procedures to conduct the modeling followed those outlined in "Procedure for Air Quality Dispersion Modeling for the Arizona HAPRACT Rule", July 2005.

During the process of conducting the dispersion modeling, additional assumptions were required that are outlined in this memorandum. In addition, several modifications to the assumptions outlined in the procedures document were required. The additional and modified assumptions are summarized below.

- Modeling was conducted based on potential to emit (PTE). The ADEQ and local agencies supplied the PTE for many of the facilities modeled. PTE was determined using the following procedures:

    o When the PTE was not available but hours of operation were available, PTE was estimated by 1) prorating the actual emissions supplied by the ADEQ or local agencies or, 2) multiplying the actual emissions from the 2002 TRI report by the ratio of 8,760 hours per year to the actual hours of operation.

    o If PTE and the actual hours of operation were not available, then the modeling was based on the TRI reported emissions.

- If a stack was designated as obstructed, horizontal, or downward, an exit velocity of 0.001 m/s was used.

- If a facility's stacks had identical emission parameters (i.e., height, diameter, temperature, and velocity), only one stack was modeled with the facility-wide emission rate, instead of splitting the emissions among the identical stacks.

- If the ADEQ or local agencies supplied additional HAP emission information that was not identified in the TRI database, these pollutants were also modeled.

- The greater of the emission rates supplied by the ADEQ, local agencies (PTE), or the TRI reported emissions were modeled.

- It was not always necessary to model all the facilities in the database for each SIC category. Once a facility within a source category showed modeled concentrations in excess of an ambient air concentration (AAC), it was not necessary to model all the other facilities within that source category.

- Building dimensions for a facility were determined by the following procedures:

  o Information from ADEQ's modeling database regarding building dimension was used when available.
  o Building dimensions were estimated if the facility was easily identified in available aerial photographs. Aerial photographs were obtained from GIS websites for tax assessors, parcel maps, or Digitial Orthophoto Quarter Quads at the following websites:
    - http://www.maricopa.gov/assessor/gisPortal/gis_portal.asp
    - http://www.dot.co.pima.az.us/gis/maps/
    - http://aria.arizona.edu/search/jsp/doqq.jsp
  o In the event 1) information was not available from ADEQ or the local programs, 2) aerial photographs did not exist, or 3) the facility could not be easily located on aerial photographs, a generic building length and width of 40 m x 40 m was used. Building width and length do not typically impact the modeling results except in unique situations.

- Unless supplied by ADEQ or the local programs, building heights were estimated by dividing the stack height by 1.5 and subtracting 0.1 m.

- A default distance to the first receptor of 25 m was used due to the difficulty in identifying process area boundaries from aerial photographs.